

Programme Specification for following programmes:

**BSc (Hons) Healthcare Science (Life Sciences) with Genetics**

**BSc (Hons) Healthcare Science (Life Sciences) with Blood Science**

**BSc (Hons) Healthcare Science (Life Sciences) with Cellular Science**

**BSc (Hons) Healthcare Science (Life Sciences) with Infection Science**

Academic Year:	2023/24
Degree Awarding Body:	University of Bradford
Final and interim award(s):	<p>BSc (Honours) [Framework for Higher Education Qualifications (FHEQ) level 6]</p> <p>BSc [Framework for Higher Education Qualifications (FHEQ) level 6]</p> <p>Diploma of Higher Education [Framework for Higher Education Qualifications (FHEQ) level 5]</p> <p>Certificate of Higher Education [Framework for Higher Education Qualifications (FHEQ) level 4]</p>
Programme accredited by:	<p>National School of Healthcare Science (NSHCS) on behalf of Health Education England (HEE)</p> <p>Institute of Biomedical Science (IBMS)</p> <p>Health and Care Professions Council (HCPC)</p>
Programme duration:	3 Years Full time (extended)
QAA Subject benchmark statement(s):	Biomedical Sciences (2023)
Date of Senate Approval:	
Date last confirmed and/or minor modification approved by Faculty Board	November 2023

Please note: This programme specification has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but changes may occur given the interval between publishing and commencement of teaching. Any change which impacts the terms and conditions of an applicant's offer will be communicated to them. Upon commencement of the programme, students will receive further detail about their course and any minor changes will be discussed and/or communicated at this point.

## Introduction

Healthcare Scientists and Biomedical Scientists play an essential role in the National Health Service. Encompassing 51 disciplines, the Healthcare Science (HCS) workforce is at the heart of safe and effective patient care; the workforce is central to high quality care for all and provides expert diagnostic advice and laboratory investigation for the treatment of patients and prevention of disease. The Department of Health (DoH), under the auspices of 'Modernising Scientific Careers (MSC)', has developed a new flexible career structure for all Healthcare Scientists underpinned by new education and training programmes and a regulatory framework to address the future needs of the NHS. It is envisaged that MSC will enable patients to receive safer care, faster diagnoses closer to home and faster entry to the correct care pathway, and access to up to date innovative scientific services.

The University of Bradford was one of the first healthcare science courses in the country. Since then, the University of Bradford Healthcare Science course has developed to be innovative through the focus on developing practical skills based on real-world scenarios. The BSc in Healthcare Science (Life Sciences) involves a multidisciplinary approach to the study of human disease. It encompasses studies of the causes of disease and the effects of disease on the normal structure and functions of the human body and it provides an understanding of the scientific basis for the laboratory investigation, diagnosis, monitoring and treatment of disease. It also develops and applies new technologies that help improve the care of patients.

Graduates from this degree programme will have a broad-based scientific background coupled with the technical skills necessary for laboratory work and more detailed knowledge and skills in their chosen Stage 3 specialism. The four pathways in Genetics, Blood Science, Cellular Science and Infection Science each have a strong specialist work-based training element which is integrated with the academic content. Every effort will be made to accommodate your preference of specialist pathway. This is, however, dependent on placement provision available at the time.

To accommodate both the academic requirements and work-based training, the programme will require extended periods of study in stages 1 and 2 (36 and 40 weeks respectively) compared to the standard 30 weeks. The stage 3 placement will take place during the standard academic year, with students attending University 1 day per week and working in their placement laboratory for the remaining 4 days per week.

Specifically, the degree programme is designed to permit students to meet the requirements of the National School of Healthcare Science on behalf of Health Education England, the Institute of Biomedical Science (IBMS), the Health and Care Professions Council (HCPC) and allows graduates to practice as a Healthcare Science Practitioner in NHS laboratories. Alternatively, graduates could find employment as a laboratory-based or nonlaboratory-based scientist in the Pharmaceutical, Biotechnology or other related industries, academic research and teaching. In addition, whilst the degree provides a qualification necessary to start a professional career graduates will need to continue to develop skills throughout their working life. This programme couples a scientific education with the development of the skills necessary for lifelong learning.

The aims and outcome statements and the supporting curriculum have been referenced to the University's Learning and Teaching Strategy, the QAA Subject Benchmark statement for Biomedical Science, the Modernising Scientific Careers Curriculum Strategy Group guidelines, the Framework for Higher Education Qualifications, the IBMS portfolio of competence and HCPC standards.

## Programme Aims

The programme is intended to:

- Deliver a programme of study in Healthcare Science for students from diverse cultural and educational backgrounds.
- Enhance learning by providing specialist work-based training in all years of the programme.
- Develop subject knowledge and understanding in the core areas of Healthcare Science and the specialised areas of Genetics, Blood Sciences, Cellular Sciences or Infection Sciences to reflect the requirements of the Health Education England and the Subject Benchmark Statement(s).
- Develop an understanding of the organisation and role of the NHS.
- Develop an understanding of pathology and laboratory medicine in patient care including an awareness of the implications of ethnicity, gender as well as social and cultural diversity in health and disease.
- Develop an understanding of how the Healthcare Science workforce contributes to patient pathways relevant to Life Sciences and ensure the needs and wishes of the patient are central to their care.
- Demonstrate attitudes and behaviours essential to providing high quality care.
- Develop core discipline specific skills as outlined in the curriculum to reflect the requirements of the National School of Healthcare Science and the Subject Benchmark Statement(s).
- Develop research skills to reflect the requirements of the National School of Healthcare Science and the Subject Benchmark Statement(s).
- Develop personal transferable skills that enable students to progress successfully in employment, career development and/or further education.
- Provide a National School of Healthcare Science, IBMS accredited and HCPC approved degree which will allow students to progress to employment as a Healthcare Science Practitioner/Biomedical Scientist in NHS laboratories.
- Enable the student to apply for registration with the Health and Care Professions Council (HCPC) as Biomedical Scientists or any other future protected title that is appropriate to the degree. Registration can be applied for after successful completion of the degree and following completion of the IBMS portfolio. The portfolio provides evidence of achievement of the HCPC Standards of Proficiency for a Biomedical Scientist and leads to the award of a Certificate of Competence from the IBMS.
- Provide a supportive and structured environment in which students are encouraged to develop the independent study skills required for lifelong learning.

## **Programme Learning Outcomes**

**To be eligible for the non-accredited award of Certificate of Higher Education at FHEQ level 4, students will be able to:**

1. Discuss and evaluate specialist and core aspects of Healthcare Science (HCS) including Cell Biology, Biochemistry, Anatomy, Physiology, Pathology, Immunology, Microbiology, Epidemiology, Medical Physics and Public Health Medicine/Health Protection.
2. Provide evidence of an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of their subject(s) of study.
3. Write scientific reports and communicate the results of their study/work accurately and reliably, and with structured and coherent arguments.
4. Use a range of personal transferable skills including communication, information technology (including the use of the internet and other electronic devices as sources of information and means of communication), team working, negotiating and decision-making, responsibility for self-directed learning and time-management skills that are required in a working environment and prepare students for lifelong learning.
5. Use skills associated with professional and ethical laboratory practice in Healthcare Science, including: SOP writing, COSHH /risk assessment, good laboratory practice, as well as respond appropriately to The Human Tissue Act 2004, governance, audit and quality control and assurance.

**Additionally, to be eligible for the non-accredited award of Diploma of Higher Education at FHEQ level 5, students will be able to:**

6. Demonstrate knowledge and critical understanding of the well-established principles of Biomedical Science, and of the way in which those principles have developed.
7. Discuss and evaluate the organisation and role of the NHS and Pathology and Laboratory Medicine and the laboratory specialities of genetics, cellular pathology, clinical biochemistry, clinical immunology, haematology and transfusion science, and medical microbiology; demonstrate advanced knowledge and understanding of the chosen specialist area.
8. Select and evaluate experimental and clinical laboratory techniques and be able to apply them to experimental and laboratory investigations.
9. Prepare, process, analyse (including the statistical analysis) and interpret experimental/clinical laboratory data and present data in an appropriate format.
10. Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences and interpret and critically review scientific literature.

**Additionally, to be eligible for the award of Ordinary Degree of Bachelor at FHEQ level 6, students will be able to:**

11. Demonstrate a systematic understanding of key aspects of Biomedical Science, including acquisition of coherent and detailed knowledge, informed by current research-led aspects of a discipline.
12. Demonstrate an ability to undertake autonomous learning.

**Additionally, to be eligible for the award of Honours Degree of Bachelor at FHEQ level 6, students will be able to:**

13. Apply skills in critical and analytical thinking, use and apply numerical and statistical techniques and use problem solving skills.
14. Discuss and evaluate current research to develop new diagnostic procedures as well as new therapeutic intervention strategies.
15. Demonstrate the standards of proficiency required by NSHCS, IBMS and HCPC by successfully completing specialist work-based training.

## **Curriculum**

The curriculum has been developed as a spiral to reinforce and build upon core knowledge at each level, encouraging deep understanding and knowledge embedding good practice in inclusive learning and teaching.

At Stage 1, students study normal human biology at the level of the molecule, gene, cell, organ, and organism along with introductory microbiology. Laboratory sessions, run in conjunction with the theoretical components, allow students to consolidate and apply their knowledge. Students are introduced to basic laboratory skills and skills for data handling and interpretation. Students will be supported to develop a reflective attitude to learning and develop numerical, written and oral communication, IT and group-working skills.

### **Stage 1 – All Specialisms**

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
4	Cell Biology	Core	20	1	BIS4016-B
4	Molecules of Life	Core	20	1	BIS4017-B
4	Human Physiology	Core	20	1&2	BIS4009-B
4	Work based learning and Professional Practice 1 for Healthcare Scientists	Core	20	1-3	BIS4011-B
4	Introductory Microbiology	Core	20	2	BIS4013-B
4	Genetics	Core	20	2	BIS4019-B

At the end of stage 1, students will be eligible to exit with the award of Certificate of Higher Education if they have successfully completed at least 120 credits and achieved the award learning outcomes. **This exit award is not accredited by the Institute of Biomedical Science (IBMS), nor does it confer eligibility to register with the Health and Care Professions Council (HCPC).**

## Stage 2- All Specialisms

At Stage 2, the curriculum continues to concentrate on core areas of Biomedical Science, in particular, the laboratory disciplines. Students will start to examine the processes that disrupt normal human biological function and so cause disease. Students will also explore the methods used to diagnose and treat disease. Again, laboratory sessions will provide the opportunity to enhance understanding of some topics and students will further develop their laboratory skills as well as skills in data handling and interpretation.

Students will also be encouraged to develop their personal transferable skills and reflect on how these will prepare them for the working environment. Students will be encouraged to self-evaluate their skills and identify and address areas for improvement.

At Stage 2, students will develop their depth of knowledge and laboratory and data handling skills and are encouraged to continue to develop autonomy in their learning by producing individual and group work and developing increasing responsibility for achieving the learning outcomes of their modules and level of study. Students will have opportunities to engage with case studies and workshop material at Stage 2, thus leading to debate and discussion of concepts and facts and enhancing the assimilation of ideas.

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
5	Clinical and Analytical Biochemistry	Core	20	1	BIS5013-B
5	Medical Microbiology and Infection Science	Core	20	1	BIS5018-B
5	Immunology, Haematology and Transfusion Science	Core	20	1&2	BIS5012-B
5	Work-based learning and Professional practice 2 for Healthcare Scientists	Core	20	1&2	BIS5016-B
5	Pathology	Core	20	2	BIS5015-B
5	Molecular Biology	Core	20	2	BIS5020-B

At the end of stage 2, students will be eligible to exit with the award of Diploma of Higher Education if they have successfully completed at least 240 credits and achieved the award learning outcomes. **This exit award is not accredited by the Institute of Biomedical Science (IBMS), nor does it confer eligibility to register with the Health and Care Professions Council (HCPC).**

### Stage 3 – Genetics

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
6	Applied Genetics	Core	10	1	BIS6027-A
6	Clinical Genetics and Genomic Medicine	Core	20	1	BIS6052-B
6	Research Project for Healthcare Science	Core	40	1&2	BIS6016-D
6	Work-based learning and Professional Practice 3 for Healthcare Scientists	Core	30	1&2	BIS6024-C
6	Biology of Disease	Core	20	2	BIS6012-B

### Stage 3 – Blood Science

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
6	Pregnancy and Paediatric Blood Science	Core	10	1	BIS6015-A
6	Advanced Topics in Haematology and Transfusion Science	Core	20	1	BIS6029-B
6	Work-based learning and Professional Practice 3 for Healthcare Scientists	Core	30	1&2	BIS6024-C
6	Research Project for Healthcare Science	Core	40	1&2	BIS6016-D
6	Diagnostics in Biochemistry and Immunology	Core	20	2	BIS6017-B

### Stage 3 – Cellular Science

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
6	Clinical Diagnostics in Reproductive Science	Core	20	1	BIS6018-B
6	Applications of Cytopathology	Core	10	1	BIS6020-A
6	Research Project for Healthcare Science	Core	40	1&2	BIS6016-D
6	Work-based learning and Professional Practice 3 for Healthcare Scientists	Core	30	1&2	BIS6024-C
6	Diagnostic Histopathology	Core	20	2	BIS6019-B

### Stage 3 – Infection Science

FHEQ Level	Module Title	Type	Credits	Semester	Module Code
6	Infectious Disease: Establishment, Treatment and Control	Core	20	1	BIS6021-B
6	Parasitology and Fungal Infections	Core	10	1	BIS6023-A
6	Research Project for Healthcare Science	Core	40	1&2	BIS6016-D
6	Work-based learning and Professional Practice 3 for Healthcare Scientists	Core	30	1&2	BIS6024-C
6	Diagnostic Microbiology	Core	20	2	BIS6022-B

Students will be eligible to exit with the award of Ordinary Degree of Bachelor if they have successfully completed 120 credits in both Level 4 and 5 and 60 credits at level 6 and achieved the award learning outcomes. **This exit award is not accredited by the Institute of Biomedical Science (IBMS), nor does it confer eligibility to register with the Health and Care Professions Council (HCPC).**

Students will be eligible for the award of Honours Degree of Bachelor if they have successfully completed at least 360 credits and achieved the award learning outcomes.

### Placement

At the end of year 1 students will spend 15 days with local NHS pathology departments, spending a period of study in each of the 5 pathology disciplines. They would also spend a session in each of the specialist areas such as inborn errors of metabolism, neonatal screening, malignancy testing, the National Blood Transfusion Service, quality management and health and safety.



The remaining two placements will be in blocks 15 weeks at the end of year 2 and the remaining 25 weeks (125 hours) during year 3 of the degree. This placement will take place in the student's specialist discipline.

In the final year students will attend the placement lab during term time on a part-time basis (4 days per week). The placement in stage 3 will run throughout the year alongside taught modules, allowing preparation time for the research project that will take place in the workplace during the final placement.

During the placement students will access the National School of Healthcare Science learning guide. This broadly uses the generic Health Professions Council Standards of Proficiency and HPC Standards of Conduct, Performance and Ethics, but contextualises these for Healthcare Science. The student will also complete the IBMS registration portfolio during the three years of the degree.

During the placement period students will also complete work-based learning modules (20 credits in level 4 and 5 and 30 credits in level 6). These will be submitted to the university for marking at the end of each placement period.

The placement will equip students with a wide range of skills that will allow them to contribute to high-quality patient care. Upon successful completion of the programme, the student will be able to fulfil the role of a Healthcare Science Practitioner in the NHS.

## **Learning and Teaching Strategy**

The learning and teaching strategy takes into consideration the learning outcomes for the programme, progression through stages of study, the nature of topics studied and the need for students to demonstrate greater autonomy in learning as students' progress through the programme.

Formal lectures will facilitate students' acquisition of knowledge and understanding (LO 1, 5,10) and discipline specific skills (LO 4,6,7, and 8). Laboratory sessions run in conjunction with the theoretical components will give students the opportunity to enhance their understanding of particular topics (LO 1, 5, 10). These will also help to develop discipline specific skills (LO 4-9) and personal transferable skills (LO 3, 9 12). Tutorials, workshops, and case studies will develop knowledge and understanding (LO 1, 5, 10), discipline specific skills (LO 4,6,7,8) and personal transferable skills (LO 3-9). The discipline specific skills will be further enhanced in the bespoke 10 credit modules in stage 3 (LO 4,6 and 8). Directed study, involving directed reading of appropriate texts and the preparation of assessed work, is used to develop the majority of learning outcomes (LO 1-12). The significant work-based training allows for the further development of all the learning outcomes (LO 1-12).

## **Assessment Strategy**

The assessment strategy is designed to allow students to demonstrate achievement of the learning outcomes of an individual module appropriate to the level of study and the learning outcomes of the programme. These learning outcomes are consistent with the Framework for Higher Education Qualifications.

At level 4, students will be examined, primarily, on the breadth of knowledge via MCQ and short answer examinations (LO 1,4). Coursework assignments will give students the

opportunity to gain experience in report writing and data handling and interpretation (LO 2,7,8).

As students progress through levels 5 and 6, they will have the opportunity to demonstrate increasing skills of analysis, synthesis and criticism through a wide variety of assessment strategies, including written and oral examinations (LO 5,6,7,8,10), report writing (LO 1-12) group work (LO 5,6,7,8,4, 8,10,12), essays, including a dissertation/ piece of independent study writing (LO 1-6, 8, 10-12), oral presentations (LO 1-5, 10,8,9,12), case studies (LO 1-5, 7,8, 8,10,12) and the project report (LO 1-12).

The project report provides a major opportunity to demonstrate autonomy in data handling and critical interpretation in a research context. Student's professional competencies will be assessed primarily in the workplace through the work-based learning modules (LO 11) A memorandum of agreement will outline the responsibilities and accountability for achieving the outcomes and what support and guidance will be provided by the tutors. Successful completion of work-based training and the IBMS portfolio will be a requirement for registration to practice.

## **Assessment Regulations**

This Programme conforms to the standard University Assessment Regulations which are available at the link below:

[www.bradford.ac.uk/regulations](http://www.bradford.ac.uk/regulations)

However, there are two exceptions to these regulations as listed below:

1. Compensation and referral are not permitted. This means that all modules must be passed at 40% or higher in order to progress between stages and be eligible for a final award of BSc (Hons).
2. Students must pass specified individual components within modules at the pass-mark(s) stated in the module descriptor.

## **Admission Requirements**

We take into consideration a number of factors when assessing your application. It's not just about your grades; we take the time to understand your personal circumstances and make decisions based on your potential to thrive at university and beyond. Consideration of applications will be based on a combination of formal academic qualifications and other relevant experience.

The minimum entry requirements for the programme will be 120 UCAS points (old tariff: 300 points) from a combination of "A" levels one of which should include Biology or Chemistry at A2. Other equivalent vocational qualifications will also be considered as suitable entry requirements (BTEC, NVQ3/4). For T-level we require a merit with subject specific requirement in Science. Applicants should also hold Mathematics and English grade C (level 4) or above at GCSE. All applicants will be interviewed prior to an offer.

A student who has recently studied a syllabus as part of a previous qualification prior to enrolling on the HCS degree will be able to have their qualification assessed to identify whether credit can be given for any modules studied. This may mean that a student is not required to take a particular unit of the HCS degree.

The University of Bradford has always welcomed applications from disabled students, and these will be considered on the same academic grounds as are applied to all applicants. Students who have some form of disability may wish to contact the programme leader before they apply.

If applicants meet the entry requirements, they will be invited to the Faculty for an interview and will also have an opportunity to meet staff, view the facilities and discuss “the Bradford experience” with current students. Offers will be made subject to a successful interview.

Applications are welcome from students with non-standard qualifications or mature students (those over 21 years of age on entry).

Successful applicants will be expected to undertake Disclosure and Barring Service check (DBS) and appropriate health checks.

## **Recognition of Prior Learning**

If applicants have prior certificated learning or professional experience which may be equivalent to parts of this programme, the University has procedures to evaluate and recognise this learning in order to provide applicants with exemptions from specified modules or parts of the programme.

## **Minor Modification Schedule**

Version Number	Brief description of Modification	Date of Approval (Faculty Board)
1	Annual changes to programme spec for 2023 academic year	Jan 2024